INSTALLATION AND OPERATING INSTRUCTIONS **HR 40** RADIATOR CONTROLLER

BRIEF DESCRIPTION

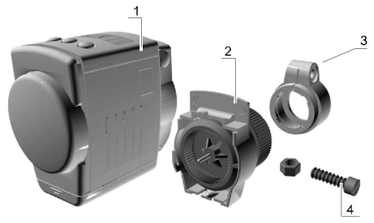
The HR 40 is an electronic radiator controller with a series of convenient functions:

- You can set your own times and choose from two different setpoint temperatures to set up your own heating programme for each day of the week.
- Self-monitoring features offer protection against calcification and frost, help save energy or indicate when the batteries need to be changed.
- The adjusting ring on the operating unit allows simple changing of the room temperature at any time.
- Installation of the radiator controller is simple and avoids any dirt or water staining.

A setpoint adjuster and power supply unit are also available for the HR 40:

- The HCW 23 K setpoint adjuster can be connected if the mounting site is unfavorable or to make operation more user-friendly. Using a sensor, the setpoint adjuster determines current room temperature which can be adjusted ±12 °C via an adjusting ring. The HCV 23 connecting cable is located next to the setpoint adjuster.
- The HN 40 power supply unit makes the HR 40 independent of batteries.

Scope of supply: Check after unpacking!



Operating unit including batteries (1)
Valve lantern with adjusting ring (2)
Bag containing adapter (3), screw and nut (4)

INSTALLATION

ONLY 4 STEPS TO COMPLETION...

It only takes a short time to install the HR 40:

- You remove the old thermostat.
- If necessary you install an adapter on the valve.
- You install the valve lantern.
- You attach the operating unit. **... Finished!**

Optional:

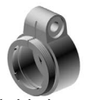
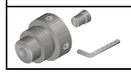
- You connect the HCW 23 K setpoint adjuster.
- You connect the HN 40 power supply unit.

1. REMOVING THE OLD THERMOSTAT

1. Loosen the mounting of the old thermostat.
2. Pull the thermostat off the valve.

2. INSTALLING THE ADAPTER (OPTIONAL)

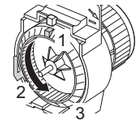
The Honeywell-Braukmann, MNG, Heimeier, Junkers, Landis & Gyr 'Duogyr' valves do not require an adapter. Adapters are available for Oventrop, Herz, Danfoss and Vaillant valves:

	Adapter manufacturer/type	Order No.
	Oventrop **HU 01** (knurled nut M30x1)	073341076
	Herz **HU 02** (knurled nut M28)	073341725
	Danfoss adapter set **EVA 1-Danfoss**	072031201
RAV (grey)	 RA (white) (enclosed)	RAVL (black)
	Vaillant adapter **EHA 1VAI**	072031082

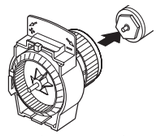
1. Select the right adapter from the table.
2. If you need an adapter: open up the adapter and push it onto the valve as far as the stop. Turn it while doing so until you feel it click into place.
3. For the Danfoss RAV adapter: insert the adapter pin in the valve rocker.
4. If provided on the adapter: tighten the adapter with the screw.

3. INSTALLING THE VALVE LANTERN

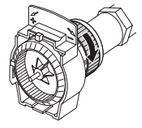
1. Turn the adjusting ring (3) of the valve lantern to the left until the nose (1) of the adjusting ring is positioned at the stop (2) of the housing.



2. Slide the valve lantern onto the valve or adapter.
   The flat area on the valve lantern head must point upwards.



3. Move the knurled nut forwards and tighten it firmly by hand (do not use a tool for this!).

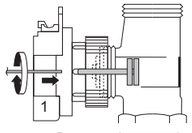


ℹ The valve is now open and, with the central heating switched on, the radiator warms through.

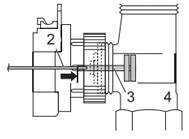
Checking the valve lift

ℹ The nose of the adjusting ring is positioned at the stop of the housing.

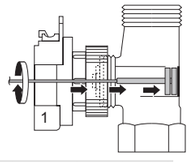
1. Turn the adjusting ring of the valve lantern (1) to the right until resistance can be felt.



The spindle (2) of the valve lantern is now touching the valve pin (3) of the radiator valve (4).



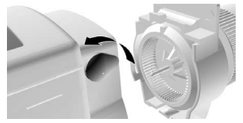
2. Turn the adjusting ring on the valve lantern (1) to the right until the final stop is reached.
   The radiator valve is closed. With the central heating switched on, the radiator cools down.



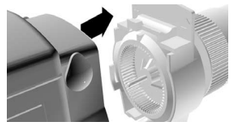
ℹ The valve lift between the left-hand stop (open) and the right-hand stop (closed) has to amount to at least ¾ of a rotation.

4. INSERTING OR REMOVING THE OPERATING UNIT

1. Turn the retaining bracket on the operating unit until it points upward.



2. Fit the operating unit onto the valve lantern, pushing it on as far as the stop.
   The flat surface of the valve lantern must be flush with the operating unit.



3. Turn the retaining bracket on the operating unit until the tip points rearward.

The radiator controller automatically adapts itself to the valve. The display changes during auto-adaptation from Ad_1 to Ad_A. To remove the operating unit, reverse this sequence of operations.

5. CONNECTING THE HCW 23 K SETPOINT ADJUSTER (OPTIONAL)

Note

A setpoint adjuster can only regulate one HR 40. It is connected via the supplied HCV 23 cable.
The setpoint adjuster determines the current room temperature by means of a sensor.

Important!

► Only connect the setpoint adjuster with the power switched off!

1. Remove the batteries from the HR 40.
2. Use a screwdriver to lever out the cover on the right-hand side of the operating unit.

3. Connect the connecting cable:
   see the HCW 23 K installation instructions.
4. Replace the batteries in the HR 40.
5. Adjust the date and time.

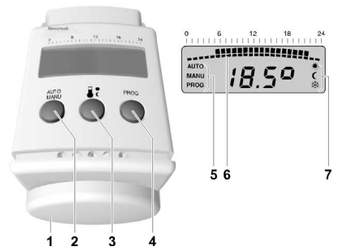
6. CONNECTING THE POWER SUPPLY UNIT (OPTIONAL)

The HR 40 can be supplied with power from the HN 40 power supply unit.
Please refer to the HN 40 documentation for information on the procedure.

FUNCTIONS OF THE HR 40

OPERATING ELEMENTS AND DISPLAY

(1) Adjusting ring for setting the temperature or time
(2) AUTO MANU button for changing between Auto and Manu mode
(3) button for setting the comfort and economy temperatures
(4) PROG button for setting the clock and time program
(5) Operating mode: Auto, Manu or Prog
(6) Heating period in hours
(7) Comfort or economy temperature or frost protection



HOW THE HR 40 WORKS

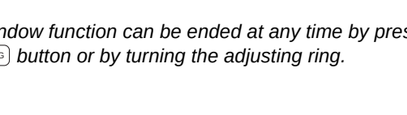
Temperatures and control periods

The HR 40 changes between 2 setpoint temperatures...

- Comfort temperature ☼ (ex works 21 °C)
- Economy temperature ☾ (ex works 16 °C)

....and 2 periods:

- Heating period — Ex works start 6.00 a.m. Heating to comfort temperature
- Economy period — Ex works start 22.00 p.m Lowering to economy temperature



Heating and economy periods are freely adjustable. The 2nd heating and economy period is optional.

HOW TO CHANGE THE ROOM TEMPERATURE

...with the adjusting ring on the operating unit

The adjusting ring on the operating unit can be used to change the setpoint temperature at any time. The setting will apply until the next programmed heating or economy period. When the adjusting ring is turned the display shows the preset setpoint temperature. The adjusting ring does not have a stop. By turning the ring clockwise, the following settings are shown:

Display	Setting
OFF and ❄	Radiator valve closed, frost protection active
8...28	Current setpoint temperature (poss. adjustment range)
On	Radiator valve fully open

...with the HCW 23 K setpoint adjuster

Using the setpoint adjuster, the room temperature can be adjusted by ±12 °C. The radiator controller adjustment range is 8 °C – 28 °C. The On and OFF functions cannot be set.

Note

When you use the setpoint adjuster to adjust the room temperature, the controller's display shows the newly set temperature within 3 minutes. The programmed setpoint temperature remains in the memory.

AUTOMATIC FUNCTIONS

- **Window function**

If you open a window so that the temperature at the radiator controller drops sharply for more than 3 minutes, the radiator controller closes the radiator valve in order to save energy. The display then shows the message OPEn.
When the temperature rises again – but no later than after 30 minutes – the radiator controller will resume normal operation.

Note

The window function can be ended at any time by pressing the PROG button or by turning the adjusting ring.

- **Protection against lime**

The radiator valve is opened automatically every Saturday between 10:00 and 12:00 a.m. and then closed again, irrespective of the current operating mode (Auto or Manu mode).
The display changes during the process from Ad_1 to Ad_A.

- **Frost protection**

If the temperature drops below 6 °C, the HR 40 opens the radiator valve until the temperature rises above 8 °C again. In this way, the HR 40 prevents the radiator from freezing.
The ❄ symbol flashes as soon as frost protection is activated.

Note

Frost protection only works with fully-charged batteries and with the operating unit attached.

- **Summer/winter time**

The HR 40 will switch to summer or winter time automatically.

- **Battery change display**

The bATT display flashes when the batteries need to be changed.

ADJUSTING THE SETTINGS

To change the HR 40 works settings:

1. Set the comfort and economy temperatures.
2. First set the same heating and economy periods.
   Select the 1-7 display using the adjusting ring on the operating unit. All the weekdays are assigned the same heating and economy periods.
3. If required you can set heating and economy periods for the individual weekdays.

Operating hints:

- *Remove the operating unit to make settings*
- *Press the AUTO MANU button to cancel the programming. The HR 40 ignores the last input and returns to Auto mode.*

CHANGING THE TEMPERATURES AND PERIODS

Setting the comfort and economy temperatures

1. Press the button.
2. Use the adjusting ring on the operating unit to set the comfort temperature.
3. Press the button.
4. Use the adjusting ring to set the economy temperature.
5. Press the button to confirm this change.
   The HR 40 then returns to Auto/Manu mode.

Changing the time program

You can set 2 comfort and 2 economy periods for each weekday. In the time program, the days from Monday to Sunday are numbered from 1 to 7.

Note

Each heating period must always have a corresponding economy period assigned to it (see also the operating example).

1. Press the PROG button.
2. Set all weekdays identically:
   Select 1-7 with the adjusting ring
   or
   set the individual day:
   select the desired weekday with the adjusting ring.
3. Confirm with the PROG button.
4. Set the start of the 1st heating period with the adjusting ring.
5. Confirm with the PROG button.
6. Set the start of the 1st economy period with the adjusting ring.
7. Confirm with the PROG button.

For a 2nd heating and economy period
repeat steps 4-7.

Set the periods for another weekday:
Repeat steps 2-7.

8. End the procedure with the AUTO MANU button.

The new periods are programmed.

Operating example

In this example, the start of the heating period for Wednesday is set to 7.30 a.m. and the economy period for 22.30 p.m.

1. Press the PROG button.
2. Turn the adjusting ring until 3 appears in the display.
   Wednesday is now selected.
3. Confirm with the PROG button.
4. Set 7:30 using the adjusting ring.
5. Confirm with the PROG button.
6. Set 22:30 using the adjusting ring.
7. Confirm with the PROG button.
   Finished!

Deleting heating and economy periods

You can delete the 1st or 2nd heating period for one weekday or for all the weekdays at once.

Note

For each deleted heating period the corresponding economy period must also be deleted.

1. Press the PROG button.
2. Select the weekday:
   Delete all weekdays: set 1-7 using the adjusting ring
   or
   select the individual day:
   select the desired weekday with the adjusting ring.
3. Confirm the selection with the PROG button.
4. Keep pressing the PROG button until the desired switching time appears.
5. Turn the adjusting ring until --:-- appears in the display.
6. Confirm with the PROG button.
   The first heating period is deleted.
7. Turn the adjusting ring again until --:-- appears in the display.
8. Confirm with the PROG button.
   The second heating period is deleted.
9. End the procedure with the AUTO MANU button
   or
   select and delete the next weekday.

OTHER SETTING OPTIONS

Resetting the time and date

Note

The date and time are set ex works. Should the batteries be empty for an extended period (nothing in the display) or if it has taken too long to change the batteries, you will need to reset the date and time.

1. Hold the PROG button down for 2 seconds.
2. Set the year using the adjusting ring.
3. Confirm the selection with the PROG button.
4. Set the month using the adjusting ring.
5. Confirm with the PROG button.
6. Set the day using the adjusting ring.
7. Confirm with the PROG button.
8. Set the hour using the adjusting ring.
9. Confirm with the PROG button.
10. Set the minute using the adjusting ring and confirm with the PROG button.

Constant temperature without time program (vacation)

1. Switch to Manu mode with the AUTO MANU button.
2. Set the temperature using the adjusting ring.

This temperature is retained until you return to Auto mode.

Heating break (summer)

If you have switched off the central heating system in summer and do not want to waste the batteries of the HR 40:

1. Switch to Manu mode with the AUTO MANU button.
2. Turn the adjusting ring clockwise until the On message appears in the display.

The radiator valve now remains open and the HR 40 switched off.

Radiator off

1. Switch to Manu mode with the AUTO MANU button.
2. Turn the adjusting ring anticlockwise until the OFF message appears in the display.

The radiator valve is now closed.

Note

Frost protection is still ensured.

Locking the adjusting ring (child-proofing)

– Press the AUTO MANU and buttons simultaneously for 2 seconds.
  The message bloc is displayed.

Unlocking the adjusting ring:

– Press AUTO MANU and buttons simultaneously again for 2 seconds.

CHANGING THE BATTERIES

The batteries need changing when bATT flashes on the display.
The following anti-leak batteries can be used for the HR 40:

Type	Designation	Battery life
AA battery	Alkaline-manganese LR6 AA AM3	2 years
1.5 V Accu.	Alkaline-manganese LR6 AA AM3	¾ year
Lithium battery	LR6 AA AM3	2 years

1. Remove the operating unit.
2. Open the battery compartment on the underside of the operating unit.

3. Remove and dispose of used batteries in accordance with the local statutory requirements.

Note

Batteries may not be disposed of with household garbage. You are legally required to return used batteries.

4. Insert two batteries into the battery compartment of the operating unit making sure the polarity is correct.

Note

If batteries are not correctly inserted, they may discharge.

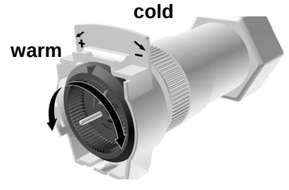
5. Close the battery compartment and click it in place.
6. Attach the operating unit.

Note

If changing the batteries takes a long time or the operating unit is not removed, the time will need to be reset.

ADJUSTING THE VALVE WHEN THE BATTERIES ARE EMPTY (EMERGENCY OPERATION)

1. Remove the operating unit, see step 4.
2. Operate the radiator valve by hand using the adjusting ring on the valve lantern:



MANUAL ADAPTATION

Manual adaptation will be necessary if the radiator does not become cold in position OFF or the E1 or E3 fault messages appear on the display (see: Help with problems).

Carrying out manual adaptation

1. Remove the operating unit.
2. Turn the adjusting ring on the valve lantern clockwise until the valve is closed.
3. Hold the button down.
4. Slide the operating unit onto the valve lantern until the stop is reached and lock.

The display changes from Manu A__P to Manu A__3.

> **i** In manual adaptation, you must to close the radiator valve completely before you can reconnect the operating unit and the valve lantern.

Reactivating automatic adaptation

1. Hold the PROG button down.
2. Slide the operating unit onto the valve lantern until the stop is reached and lock.

The HR 40 automatically adapts itself to the valve. Automatic adaptation is reactivated.

HELP WITH PROBLEMS

Problem/Display	Cause	Remedy
The radiator will not become cold	The valve is not closing fully	Check the fitting and if necessary carry out manual adaptation
Auto Ad_1 to Auto Ad_A	Display during automatic adaptation	Automatic adaptation takes 3 minutes at most
Manu A__P to Manu A__3	Display during manual adaptation	–
bATT flashes	The battery level is too low	Change the batteries as soon as possible
bATT	The batteries are empty (no valve movement is possible)	Change the batteries immediately
E1	No adaptation is possible	Check the fitting and if necessary carry out manual adaptation
E2	The operating unit is not attached	Attach the operating unit correctly
E3	The motor cannot be moved/the valve stroke is too short	Check the fitting, and if necessary remove dirt and carry out manual adaptation
E4	The unit is defective	Please contact your local dealer

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